

ABSTRACT OF THE DISCLOSURE

An apparatus and method for performing coarse frequency synchronization in an orthogonal frequency division multiplexing (OFDM) receiver are provided. The coarse frequency synchronization apparatus in a frequency synchronizer of an orthogonal frequency division multiplexing (OFDM) receiver includes a buffer that receives a demodulated symbol and outputs a shifted symbol generated by cyclically shifting the symbol by a predetermined shift amount; a controller that determines the length of a summation interval according to a phase coherence bandwidth and a number of sub-bands into which the summation interval is divided, and generates and adjusts a symbol time offset according to the number of sub-bands; a reference symbol predistortion portion that generates a reference symbol whose phase is distorted by the symbol time offset; a counter that counts the shift amount ; a partial correlation portion that receives the shifted symbol and the reference symbol and calculates a partial correlation value for each of the sub-bands; and a maximum value detector that calculates the shift amount where the partial correlation value is a maximum and outputs the same as an estimated coarse frequency offset value.